

# **MDO - An Ontology for the Materials Design Domain**

## **Huanyu Li, Rickard Armiento and Patrick Lambrix**

Linköping University, Sweden, firstname.lastname@liu.se

**Key Words:** *Ontology, Materials science.*

In the materials design domain, much of the data from materials calculations are stored in different heterogeneous databases. Materials databases usually have different data models. Therefore, the users have to face the challenges to find the data from adequate sources and integrate data from multiple sources.

Ontologies and ontology-based techniques can address such problems as the formal representation of domain knowledge can make data more available and interoperable among different systems. In this poster, we introduce the Materials Design Ontology (MDO), which defines concepts and relations to cover knowledge in the field of materials design. MDO is designed using domain knowledge in materials science (especially in solid-state physics), and is guided by the data from several databases in the materials design field.

We show the application of MDO to materials data retrieved from well-known materials databases.

### **REFERENCES**

[1] Li H., Armiento R., Lambrix P. (2020) An Ontology for the Materials Design Domain. In: Pan J.Z. et al. (eds) The Semantic Web – ISWC 2020. ISWC 2020. Lecture Notes in Computer Science, vol 12507. Springer, Cham. [https://doi.org/10.1007/978-3-030-62466-8\\_14](https://doi.org/10.1007/978-3-030-62466-8_14)